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L3: Entry 2 of 2

File: DWPI

Oct 2, 1989

DERWENT-ACC-NO: 1989-329458
DERWENT-WEEK: 198945
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TITLE: Cosmetic material contg. liq. crystal - comprises cholesterol ester with 2 or more fatty acids blended with cholesteryl 12-hydroxy-stearate

PATENT-ASSIGNEE:

ASSIGNEE

CODE

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OGIMN

PRIORITY-DATA: 1988JP-0071917 (March 28, 1988)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 01246209 A	October 2, 1989		006	
JP 91049886 B	July 31, 1991		000	

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP01246209A	March 28, 1988	1988JP-0071917	
JP91049886B	March 28, 1988	1988JP-0071917	

INT-CL (IPC): A61K 7/00; C09K 19/50

ABSTRACTED-PUB-NO: JP01246209A
BASIC-ABSTRACT:

A new cosmetic material contg. liq. crystal is a transparent or a semi-transparent cosmetic dispersed with a liq.-crystal cpd. which is based on an ester of cholesterol with two or more fatty acids of oleic, butyric, lauric, decanoic, and nonanoic acid and blended with cholesteryl 12-hydroxystearate. Another material is a transparent or a semi-transparent cosmetic which is dispersed with a liq.-crystal cpd. of linoleic acid blended with cholesteryl 12-hydroxystearate.

The blend ratio of cholesteryl 12-hydroxystearate is, e.g., 2-4%. Since liq. crystal is susceptible to UV rays, the blend of antioxidants, such as tocopherol, is very effective to prevent the time-lapse change.

USE/ADVANTAGE - The blend of cholesteryl 12-hydroxystearate ensures the colouring of the liq.-crystal cpd. and notably improves the moisture retention. The material has pearl-like glossiness, changes its appearance according to light and temp. (e.g., the body temp.), and little stimulates the skin.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: COSMETIC MATERIAL CONTAIN LIQUID CRYSTAL COMPRISE CHOLESTEROL ESTER MORE FATTY ACID BLEND CHOLESTERYL HYDROXY STEARATE

DERWENT-CLASS: D21 E15

CPI-CODES: D08-B01; E01;

CHEMICAL-CODES:

Chemical Indexing M5 *01*

Fragmentation Code

M782 M903 M904 Q254 Q335 R023 R032 S005 S032 S131

S133 S134 S142 S143 S303 S317 S500 S703 S730 S732

S733 S735 S736 S762 U560 U563

Markush Compounds

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Registry Numbers

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SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1989-146023

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L11: Entry 1 of 7

File: USPT

Aug 7, 2001

DOCUMENT-IDENTIFIER: US 6270783 B1

TITLE: Cosmetic strips with liquid crystal temperature dependent color changeAbstract Paragraph Left (1):

An adhesive cosmetic strip is provided which includes a flexible water-insoluble substrate, an adhesive composition deposited onto the substrate, a liquid crystal thermochromic substance, and an agent interactive with water to ensure a temperature rise of at least 2.degree. C. in the strip. The thermochromic substance may be impregnated into the substrate or dispersed within the adhesive composition. When applied to the skin, the strip is warmed by a reaction between water and an exothermic or endothermic agent held within the strip. Moisture within the skin or externally applied water penetrates the strip and will react with the agent to cause an increase in temperature. Subsequently this increase in temperature will induce a color change in the thermochromic substance.

Brief Summary Paragraph Right (2):

The invention concerns cosmetic dermal strips or patches which provide consumers with a color change indicator as a sensorial signal.

Brief Summary Paragraph Right (4):

Cosmetics are often provided with consumer perceivable sensorial signals. Most common of these signals are fragrances. Pleasing odor is often the single most important attribute inducing re-purchase by a consumer. Other sensorial attributes are also significant in cosmetic chemistry. Skinfeel of a product is highly important. Creams, lotions, gels and pastes often are judged for their efficacy by the tactility of their feel. Silky, non-residue leaving cosmetics are much preferred over tacky ones, and the consumer may relate those aesthetics to actual pharmacological performance.

Brief Summary Paragraph Right (6):

Dermal patches or strips have recently become popular as delivery vehicle systems for cosmetic compositions. For instance, WO 98/42303 (Crotty et al.) describes a dry-to-the-touch keratotic plug remover strip. Upon wetting, the strip turns tacky and mobile. This product is placed on the bridge of the nose or other areas of the face requiring keratotic plug removal. Within a short time period, water evaporates from the wetted adhesive forming a dry film. The consumer must then peel the film from the face along with unwanted plugs bonded thereto. Amounts of water applied by the consumer may vary. Drying times are therefore also variable. A sensorial signal would be helpful for the consumer to know when to begin the peel removal.

Brief Summary Paragraph Right (8):

Other types of sensorial signals have been sought for incorporation into cosmetics. The signals should either provide an independently new effect or complement those which have traditionally been employed.

Brief Summary Paragraph Right (9):

Accordingly, it is an object of the present invention to provide cosmetic products, especially dermal strips or patches with a new sensorial signal.

Brief Summary Paragraph Right (10):

Still another object of the present invention is to provide cosmetic products, especially dermal strips or patches with a sensorial signal which may augment other sensory or emotive aesthetics of such products.

Brief Summary Paragraph Right (11):

Yet another object of the present invention is to provide cosmetic products, especially dermal strips or patches which include a timing mechanism for application,

rub-in or removal of the product from a consumer's skin.

Brief Summary Paragraph Right (13):

An adhesive cosmetic strip is provided for placement on skin which includes:

Brief Summary Paragraph Right (14):

Now a visual sensorial signal has been found for use with dermal strips or patches. The invention is based upon the use of liquid crystal thermochromic substances whose color changes in response to a change in temperature. The substances may either be incorporated into the flexible substrate structurally supporting the strip or patch or may be formulated with the adhesive.

Brief Summary Paragraph Right (15):

Liquid crystal thermochromic substances ordinarily are colorless (essentially transparent) except when in a specific temperature range, at which time they become visible. Often mixtures of these substances are employed to change different colors responsive to changes in temperature. They may be cholesteric or chiral nematic liquid crystals. Commercially the substances are available from Hallcrest of Glenview, Ill. Hallcrest has developed a silk-screenable liquid crystal material which is called a microencapsulated chiral nematic with vivid colors. Since the liquid crystal scatters light, it thus requires a generally dark background to be most visible. It changes through its liquid crystal visible color spectrum of clear to red to green to blue to purple to clear (as heated) or the reverse color sequence (when cooled). Temperature below its design temperature range, the liquid crystal substance is essentially transparent. Similarly, the temperature above its design temperature range, the liquid crystal material is also essentially transparent. Therefore, the liquid crystal material is only visible when at a temperature within the desired temperature range. Typical liquid crystals are cholesteryl ester carbonates or chiral nematic (non-sterol) aryl compounds. Particularly useful are (2-methylbutyl)phenol 4-alkyl(oxy)benzoates. Hallcrest provides microencapsulated thermochromic liquid crystals in sheet form with an adhesive backing under stock items R20C5W, R25C5W, R29C5W, R30C5W, R35C5W, R40C5W and R35C1W. Other types of liquid crystals which may be useful for the present invention are mentioned in WO 91/09106 (El-Nokaly et al.), U.S. Pat. No. 5,705,093 (Coates et al.) and U.S. Pat. No. 5,690,857 (Osterried et al.). Amounts of the liquid crystal in strips of the present invention may range from about 0.00001 to about 20%, preferably from about 0.01 to about 10%, optimally about 0.5 to about 5% by weight of the strip.

Brief Summary Paragraph Right (16):

Liquid crystal thermochromic substances of the present invention will be capable of operating across many temperature change windows. Some windows may be as small as 0.5.degree. C. while others may range as high as 20.degree. C.

Brief Summary Paragraph Right (26):

A further important element of cosmetic strips according to the present invention is that of an adhesive composition deposited onto the substrate. The adhesive may be of the pressure sensitive variety or may be a dry-to-the-touch film whose tacticity is generated by adding a small amount of water at the point of use.

Brief Summary Paragraph Right (48):

Preservatives can desirably be incorporated into the adhesive compositions to protect against the growth of potentially harmful microorganisms. Suitable preservatives include alkyl esters of para-hydroxybenzoic acid, hydantoin derivatives, propionate salts, and a variety of quaternary ammonium compounds. Cosmetic chemists are familiar with appropriate preservatives and routinely choose them to satisfy the preservative challenge test and to provide product stability. Particularly preferred preservatives are phenoxyethanol, methyl paraben, propyl paraben, imidazolidinyl urea, sodium dehydroacetate and benzyl alcohol. Preservatives are preferably employed in amounts ranging from about 0.01% to about 2% by weight of the composition.

Brief Summary Paragraph Right (51):

Emulsifiers may also be incorporated into the cosmetic strips of this invention. These emulsifiers may be anionic, nonionic, cationic, amphoteric and combinations thereof. Useful nonionic type emulsifiers include the C.sub.10 -C.sub.20 fatty alcohol or acid hydrophobes condensed with from 2 to 100 moles of ethylene oxide or propylene oxide per mole of hydrophobe; C.sub.2 -C.sub.10 alkyl substituted phenols condensed with from 2 to 20 moles of alkylene oxide; mono- and di-fatty acid esters of ethylene glycol; fatty acid monoglyceride; sorbitan, mono- and di-C.sub.8 -C.sub.20 fatty acids; block copolymers (ethylene oxide/propylene oxide); and

polyoxyethylene sorbitan as well as combinations thereof. Alkyl polyglycosides and saccharide fatty amides (e.g. methyl gluconamides) are also suitable nonionic emulsifiers. Amounts of the emulsifiers may range from about 0.1 to about 30%, preferably from about 0.5 to about 10% by weight of the adhesive composition.

Brief Summary Paragraph Type 1 (4):

(iv) a liquid crystal thermochromic substance incorporated into at least one of the substrate or adhesive composition, the thermochromic substance changing color in response to the change of temperature.

Detailed Description Paragraph Right (2):

A dry-to-the-touch strip is prepared for use in removing keratotic plugs from skin pores. The strip employed is a 70:30 rayon/polyester nonwoven fabric available from Dupont. Poly(methyl vinyl ether maleic anhydride), commercially available as Gantrez S-97.RTM. is employed as the adhesive. The resin is dispersed in water along with Microencapsulated Cholesteryl Ester Carbonate (liquid crystal), titanium dioxide, silica and 2-amino-2-methyl-1-propanol (AMP). The mixture is coated by a knife-over-roll onto the nonwoven substrate. After coating, the strip and adhesive composition are dried at 75.degree. C. in a convection oven. The dried sheet is then cut into small strips. The adhesive composition is dry-to-the-touch and has a composition as listed in Table I.

Detailed Description Paragraph Right (4):

A sheet of Hallcrest.RTM. R20C5W encapsulated thermochromic liquid crystal is attached through a pressure sensitive adhesive backing onto a surface of the fabric opposite the dry laid adhesive.

Detailed Description Paragraph Right (5):

Just prior to use, the dry adhesive side of the resultant cosmetic strip is wetted. Anhydrous silica present in the composition reacts with the water generating a substantial exotherm. This heat transfers to the liquid crystal layer causing a change in color.

Detailed Description Paragraph Right (7):

A consumer utilizes the strips by wetting face and then applying the strip to the face. Heat is generated by reaction of water with anhydrous zeolite. The temperature increase causes the microencapsulated liquid crystal to change color thereby signaling the time period necessary for maturation (drying) of strip over the skin pores. Once dried, the strip is peeled. Plugs adhere to the peel being thereby removed from the pores.

Detailed Description Paragraph Right (9):

Just prior to use, the Mylar.RTM. backing is removed. Water is applied to an area of the skin onto which the patch is to be placed. Heat generated by the reaction of water with the zeolite causes the liquid crystal to change color.

Detailed Description Paragraph Right (12):

An aqueous dispersion of cholesteryl ester liquid crystal is spread onto a cellulose non-woven substrate sheet. The sheet is dried in a convection oven to remove water and have the liquid crystal thermochromic agent deposited into the cellulose substrate. Thereafter pressure-sensitive acrylic-based resin is applied. Mixed within the acrylic-based resin is 40% of powdered, finely dispersed zeolite and 2% salicylic acid. A release liner film is applied over the adhesive. When ready for use, the liner is removed, and the adhesive strip applied to the face. Over several hours, perspiration penetrates the adhesive layer, interacts with the zeolite and thereby emits a heat of reaction. This reaction causes the thermochromic agent impregnated into the cellulosic strip to turn from blue to colorless. The color change indicates to a user the minimum time required for the strip to release its active amount of anti-acne salicylic acid agent.

CLAIMS:

1. An adhesive cosmetic strip for placement on skin comprising:

- (i) a flexible water-insoluble substrate;
- (ii) an adhesive composition deposited onto the substrate;
- (iii) an agent interactive with water present in a sufficient quantity to induce a

change of temperature in the strip of at least 2.degree. C.; and

(iv) a liquid crystal thermochromic substance incorporated into at least one of the substrate or adhesive composition, the thermochromic substance changing color in response to the change of temperature, the adhesive composition allowing the substrate to adhere to the skin.

3. The strip according to claim 1 wherein the thermochromic substance is incorporated into the substrate.

4. The strip according to claim 1 wherein the thermochromic substance is incorporated into the adhesive composition.

13. A packaged adhesive cosmetic strip for placement on skin comprising:

(A) a pouch; and

(B) an adhesive cosmetic strip sealably packaged within the pouch and comprising:

(i) a flexible water-insoluble substrate;

(ii) an adhesive composition deposited onto the substrate;

(iii) an agent interactive with water present in a sufficient quantity to induce a change of temperature in the strip of at least 2.degree. C.; and

(iv) a liquid crystal thermochromic substance incorporated into at least one of the substrate or adhesive composition, the thermochromic substance changing color in response to the change of temperature.